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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kazmer et al.
Serial No. : 09/578,108
Filed : May 24, 2000
Title : PERFORMANCE-BASED REPRESENTATION FOR SUPPORT OF MULTIPLE DECISIONS

Art Unit : 2762
Examiner : Javid A. Amini

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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REPLY BRIEF

Pursuant to 37 CFR 1.193(b)(1), Applicant responds to the new points raised in the Examiner's Answer as follows.

Applicant gratefully acknowledges withdrawal of all section 112 rejections and of the double-patenting rejection.

SECTION 103 REJECTION

(1) In the appeal brief, Applicant pointed out that the graphs in *Sugino* appear to be illustrative drawings intended to assist the reader in understanding the disclosure, and not graphs that are shown on a display.

In response the Examiner has drawn attention to col. 6, lines 1-13 of *Sugino*.¹ For the Board's convenience, this text is quoted below:

"The product specification complex analysis system in accordance with the present invention will be explained about the case where it is applied to the design of a plastic-encapsulated package of a

¹ Examiner's Answer, page 7, lines 5-12.

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semiconductor device, by way of example, and its processing flow is shown in FIGS. 1A, 1B and 1C. Incidentally, this embodiment assumes the case where the position design of chip pads (metal plates for supporting a chip) of the plastic-encapsulated package of a semiconductor device is carried out from the aspect of reliability during reflow soldering at the time of PCM (Printed Circuit Board) mounting and from the aspect of moldability during a molding process."

It is apparent that the foregoing passage merely describes a particular design problem that *Sugino* intends to discuss while illustrating the operation of his system. The quoted text does not suggest that any of the various graphs is *Sugino* pointed to by the Examiner are ever generated on a display as recited in claim 1.

(2) Applicant continues to be puzzled as to what exactly in *Sugino* the Examiner considers to be a design variable, what is a performance attribute, and what are performance graphs, decision graphs, and control graphs. Applicant has been unable to piece together a consistent and coherent identification of precisely what features in *Sugino* the Examiner considers to correspond to each of these terms.

The Examiner states, for example, that FIGS. 4-6 show decision graphs (see Answer, page 5, lines 8-9) but then states the FIG. 6 is a performance graph (see Answer, page 9, line 9). According to page 6, lines 8-10, FIG. 10 is a performance graph. But a few lines later, on line 16, it suddenly becomes a control graph.

In an effort to guide the application of *Sugino* to the claim, Applicant proposes the following procedure for identifying graphs that correspond to each of the graph types recited in the claim:

Step 1	Select a candidate graph from <i>Sugino</i> .
Step 2	Identify the axes of the selected graph.
Step 3	For each axis, identify a corresponding variable.
Step 4	For each corresponding variable, classify the variable as a design variable or a performance attribute.
Step 5	Classify the graph as:

	<p>a decision graph if both its axes correspond to design variables,</p> <p>a performance graph if both of its axes correspond to performance attributes, and</p> <p>a control graph otherwise.</p>
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Applicant submits that if one were to rigorously use the foregoing procedure to classify each graph shown in *Sugino*, it would become apparent that *Sugino* discloses only control graphs.

(3) Without even reaching the distinction between decision graphs, performance graphs, and control graphs, it would be useful to at least agree on what a graph is. It appears that in some cases, the Examiner is unclear as to what constitutes a "graph."

The Examiner appears to consider the schematic illustrations of solder reflow shown in FIG. 6 (and elsewhere) to be graphs.² This expansion of the word "graph" to include illustrations of this type is manifestly inconsistent with the term as used in the art. Indeed, the Examiner's expansive use of the word eviscerates its meaning. Under the Examiner's expansive definition, the Mona Lisa is just as much a "graph" as is a plot of y as a function of x .

As for FIG. 5, the Examiner appears to consider the parabolic curve that passes through the three hollow circles, to itself be a "graph."³ Thus, in the Examiner's view, FIG. 5 somehow manages to show five distinct graphs; these are:

² Examiner's Answer, page 9, line 10 discussing *Sugino* FIG. 6, ("Therefore by changing the values of " T ", " x " one can control the graph and simultaneously observe the performance graph in different conditions (three rectangular graphs)"); see also Examiner's Answer, page 9, lines 19-20, in discussing FIG. 7, refers to "[t]he performance graph shown on top of the polysialization section."

³ Examiner's Answer, page 8, lines 10-11, ("the control graph can also be represented by the hyperbolic graph that passes though three different conditions of chip pad")

- Graph 2: The "graph" formed by the parabolic curve itself, independently of the axes.
- Graph 3, 4, and 5: The three "graphs" above graph 1, which show solder flow for three different chip pad positions.

This use of the term "graph" is again inconsistent with its plain meaning. A curve, by itself, divorced from any axes, is not a "graph," it is merely a curve.

At the very least, a graph has axes corresponding to variables. Without axes, there are no variables. Hence, it makes no sense to speak of design variables and performance attributes. This property of a graph is missing from the illustrations of solder reflow and from the individual curves on a graph.

(4) On page 5 of the Answer, the Examiner appears to suggest that "stress" is a design variable⁴ and that FIGS. 4-6 show decision graphs.⁵ Decision graphs, as used in the claim, show a relationship between design variables. Design variables are those that the designer selects.

However, the Examiner also states that the stress, which the Examiner has just identified as a design variable, changes in response to "chip pad position, the chip pad, the stress during reflow soldering, and so forth."

The idea that stress changes as a function of anything other than the designer's will is inconsistent with the notion that stress is a design variable. As used in the claims, a design variable is what the designer selects. That stress changes in the way described by the Examiner would make stress a "performance attribute," not a "design variable." Consequently, no graph that includes stress can be a decision graph. Therefore, to the extent that any of the graphs in

⁴ Examiner's Answer, page 5, lines 8-9 ("the contents of the result of analysis are stress on the upper/lower side of the chip pad, which is one of the design parameters and changes with the chip pad position,, the chip pad, the stress during reflow soldering, and so forth.")

⁵ Examiner's Answer, page 5, line 8 ("The decision graph of Appellant corresponds to the result of analysis in Sugino as shown in figs 4 to 6")

FIGS. 4-6 have an axis that is either stress or a function of stress, that graph cannot be a decision graph.

(5) On page 6, lines 8-9,⁶ the Examiner states that FIG. 10 shows two performance graphs. In the same breath, he states that $f1$, $f2$, and x , which are associated with the axes of the graphs in FIG. 10, are all "design variables." This is a contradiction. By definition, the axes of a performance graph correspond to performance attributes. Accordingly, FIG. 10 cannot be a performance graph.

(6) On page 9, lines 9-11, the Examiner states that the three rectangular "graphs" in FIG. 6 are performance graphs. However, these three "graphs" are just drawings of three physical structures. None of them have axes with associated variables. Since these drawings are not even graphs to begin with, they certainly cannot be performance graphs.

Summary

Sugino fails to teach or suggest the subject matter for several reasons:

1. There is no teaching or suggestion that any of the graphs presented in FIGS. 4-9 of *Sugino* are ever placed on a display as recited in the claim. The graphs in *Sugino* are intended to examples of how the *Sugino* invention works. There is no indication that *Sugino* ever intended them to be displayed to a user on a display screen.
2. *Sugino* discloses only control graphs. There is no teaching or suggestion of either "decision graphs" or "performance graphs" as recited in claim 1.

For these reasons, and the reasons stated in the Appeal Brief, Applicant submits that the final rejection should be reversed.

⁶ Examiner's Answer, page 6, lines 8-9 ("as shown in FIG. 10, two performance graphs from design variables $f1$, $f2$, and x ...")

Applicant : Kazmer et al.
Serial No. : 09/578,108
Filed : May 24, 2000
Page : 6

Attorney's Docket No. 07880-082001

No fees are believed to be due in connection with the filing of this Reply Brief. However, to the extent fees are due, or if a refund is forthcoming, please adjust our Deposit Account No. 06-1050.

Respectfully submitted,

Date:

July 6, 2009



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